IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	:	Thierry BERNARD
Serial No.	:	10/522,860
For	:	PYROTECHNICAL FIRING INSTALLATION
Filed	:	August 12, 2005
Examiner	:	Stewart KNOX
Art Unit	:	3641
Confirmation No.	:	4878

745 Fifth Avenue
New York, NY 10151

April 1, 2008

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Dear Sir:

Claims 1-7 are pending in this application. Claims 1-6 are rejected, and claim 7 withdrawn, in the Final Office Action mailed October 1, 2007 (the "Office Action").

I. REASONS FOR THE REQUEST

Applicant respectfully requests that the Panel consider the following arguments.

(a) CLAIM REJECTIONS UNDER 35 U.S.C. § 112

Claims 3-6 were rejected under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter of the invention. An after-final amendment was filed to address these rejections but was not entered. Applicant's attorney respectfully requests these rejections be held in abeyance pending a panel decision on the instant pre appeal brief .

(b) CLAIM REJECTIONS UNDER 35 U.S.C. § 103

Claims 1-6 were rejected under 35 U.S.C. § 103(a) as being obvious over Manual Tecnico and Denasa Detonantes ("Manual Tecnico") alone or in view of U.S. Patent No. 3,594,703 to Holtzapple ("Holtzapple").

Applicant's attorney respectfully traverses the rejections for at least the following reasons.

Independent claim 1 recites, *inter alia*:

> "A pyrotechnical firing installation for use in a firing program, the firing installation comprising
>
> a plurality of detonators (3, 4), each detonator provided with an electrical cable (5, 6) comprising an end connector (7, 8) at the end of a terminal or end part (5a, 6a) of the electrical cable (5, 6) and at least two connection conductors, and
>
> a surface line to which the electrical cable of each detonator is connected via the electrical cable's end connector,
>
> wherein the surface line is at least partially formed by successive sections of the electrical cables of the plurality of detonators..." (Emphasis added)

Accordingly, the instant invention relates to a programmed pyrotechnical firing installation comprising a plurality of detonators, each detonator provided with an electrical cable comprising an end connector and at least two connection conductors. The electrical cable end of a first detonator is connected to an electrical cable of a second detonator by way of a first connector in accordance with the firing program in such a fashion that the connected electrical cables combine to form a surface line.

As known in the art and used in the instant application, a firing program or plan consists of determining the moment of ignition of the detonator charge in relation to the general firing signal. (See, at least, paragraphs [0002] and [0017] of U.S. Patent Application No. 2006/0086278 (the "Instant Application")).

It is submitted that neither of the cited references, considered alone or in combination, teach or suggest the above identified feature of claim 1. Specifically, neither of the cited references, taken alone or in combination, discloses nor suggests a pyrotechnical firing program comprising a plurality of detonators, each provided with an electrical cable comprising an end connector at the end of the electrical cable, and at least two connection conductors.

Manual Technico relates to a non-electric detonator system using individual shock tubes attached to a detonator at one end. A shock tube is a tube with a small inside diameter coated with a combustible powder. When used for signal transmission in blasting, one end of a shock tube is ignited, as with a percussion primer, and the powder within the tube combusts creating a front that travels along the interior of the tube towards the other end, to which is attached a detonator. Therefore, Manual Technico does not disclose or suggest a detonator with electrical cable having two or more connection conductors. To the contrary, the shock tubes possess no electrical properties.

As asserted in paragraph 7 of the Office Action, the arrangement shown in Manual Technico, and duplicated in paragraph 6 of the Office Action, comprises a pyrotechnical firing installation for use in a firing program. From the cited portion of Manual Technico, the arrangement does not provide control of detonator ignition in relation to the general firing signal as is required for a firing program. There is no teaching that the firing program of Manual Technico can be other than linear in time, based on the propagation speed of the general firing signal within the surface line coupled with the propagation speed along the shock tubes to the detonators. No other means to control the moment of ignition is provided.

Further, paragraph 7 of the Office Action asserts that it would have been obvious to one or ordinary skill in the art to modify the arrangement of Manual Technico to use electrical cables and connections. However, electrical cables and connectors are not appropriate for shock tube systems. No electrical impulse is required for a shock tube ignition system. Therefore, it is submitted that it would not have been obvious to use electrical cables and connectors in a non-electric, shock tube ignition system.

The Office Action concedes that Manual Technico does not disclose end connectors. In rejecting claims 2-6, the Office Action relies upon the combination of Manual Technico and Holtzapple. It is submitted that this combination fails to teach the instant invention.

Instant claim 2 recites, *inter alia*:

> "An end connector for use in the pyrotechnical firing installation according to claim 1, wherein the connector comprises:
>
> a first part (20) solid with the end of an electrical cable which electrical cable comes from a detonator, the first part (20) provided laterally with connection pins… to penetrate, in use, into the inside of an electrical cable coming from another detonator and

> a second part...defining a seat suitable for receiving an electrical cable (5, 6) oriented transversely to the electrical cable equipped with the connector." (Emphasis added.)

Accordingly, the first part of the connector according to the instant invention is solid with the end of an electric cable. No other components of the connector are taught to cooperate with the first part to achieve the solid relationship. Further, the connector provides pins for penetrating the inside of an electrical cable when the first part is in a solid relationship with the end of a detonator cable.

Referring to the Holtzapple specification and element description, with the corresponding nomenclature from the Office Action in parentheses, during tightening, the screw (pin) travels upwardly to contact the cable (electric cable from another detonator). Further tightening of the screw (pin) moves the block (first part) downwardly until it engages the conductor TCC (electric cable from a detonator). The engagement of the block (first part) and the electric cable from a detonator is simultaneous with the penetration of the pin into the cable from another detonator. *Holtzapple*, column 2, lines 10-21. "In effect, when screw 6 meets resistance of cable CA during tightening, the screw threads force the block 4 downwardly to tightly engage tap wire TCC [between the block and the connector]." *Id.*, column 2, lines 21-23.

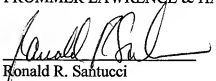
Accordingly, the first part of Holtzapple is not solid with the electric cable from a detonator until the electric cable from another detonator is introduced. In order to achieve a solid connection with the end of an electrical cable, the cooperation of at least the screw (pin), electric cable from detonator, electric cable from another detonator, and the second part are required. Further, the pin of Holtzapple is not available to penetrate the inside of an electrical cable coming from another detonator when the first part is solid with a cable because the pin is already engaged. In order to introduce a second detonator cable, screw (pin) must be loosened, resulting in the first electric cable no longer being solid with the connector. Additionally, as is clearly apparent from the at least figures 2 and 5 in Holtzapple, the second cable is clearly not oriented transversely to the electrical cable equipped with the connector.

Therefore, all the § 103(a) rejections in the Office Action should be reconsidered and withdrawn, and such relief is respectfully requested, with prompt issuance of a Notice of Allowance.

CONCLUSION

In view of the foregoing remarks, all of the claims in this application are patentable and Applicants respectfully request early passage to issue of the present application.

Respectfully submitted,
FROMMER LAWRENCE & HAUG LLP

By: 

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